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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/706,937	11/06/2000	Thomas Huber	N0070US	8577

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NAVIGATION TECHNOLOGIES
222 MERCHANDISE MART
SUITE 900, PATENT DEPT.
CHICAGO, IL 60654

EXAMINER

LE, MIRANDA

ART UNIT PAPER NUMBER

2177

14

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/706,937

Applicant(s)

HUBER ET AL.

Examiner

Miranda Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is responsive to Amendment C, filed 04/19/2004.
2. Claims 1-14 are pending in this application. Claims 1, 2, 14 are independent claims. In the Amendment C, claims 1, 14 have been amended. This action is made Final.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless:

(e) the invention was described in

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 5-9, 12-13, 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Smartt et al. (US Patent No. 6,470,287 B1).

Smartt anticipated independent claims 1, 19, 25, by the following:

As per claim 1, Smartt teaches “an index for data that represent geographic features comprising: a structure that includes three dimensions” at col. 16, lines 62-64, col. 27, lines 15-33;

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“wherein a first dimension of said three dimensions includes latitude boundary information, a second dimension of said three dimensions includes longitude boundary information, said first dimension and second dimension are searchable spatially” at col. 7, lines 7-29, col. 18, lines 10-31, col. 20, lines 17-31, col. 23, lines 18-34;

“wherein a third dimension includes non-spatial property information, said third dimension is searchable for a non-spatial property of the geographic features represented by the data” at col. 7, lines 28-41, col. 8, lines 1-23, col. 15, lines 32-45, col. 16, lines 53-64, col. 24, lines 48-61.

As per claim 2, Smartt teaches “an index for data that represent geographic features comprising: a structure that includes two spatial dimensions and a non-spatial third dimensions” at col. 23, lines 45-65, col. 24, lines 1-45, col. 7, lines 28-41;

“whereby said data indexed by said structure are searchable spatially using said two spatial dimensions” at col. 18, lines 10-31;

“whereby a non-spatial property of the data that represent the geographic features is searchable using said third dimension” at col. 7, lines 28-41, col. 8, lines 1-23, col. 27, lines 15-33, col. 23, lines 45-65, col. 24, lines 1-45.

As per claim 14, Smartt teaches “an index for data comprising: a structure that includes a first dimension, a second dimension and a third dimension” at col. 1, lines 16-19, col. 7, lines 28-41,

“wherein said first dimension includes latitude boundary information, wherein said second dimension includes longitude boundary information, whereby said data

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indexed by said structure are searchable using said first and second dimensions” at col. 2, lines 25-39, col. 7, lines 7-29, col. 8, lines 18-22,

“wherein said third dimension includes granularity information of the indexed data” at col. 25, line 6 to col. 26, line 6, col. 10, line, line 22 to col. 11, line 17, col. 23, lines 18-34, col. 18, lines 10-31, col. 20, lines 17-31, col. 27, lines 15-33,

“whereby a granularity of the indexed data is searchable using said third dimension” at col. 10, line, line 22 to col. 11, line 17, col. 25, lines 6-58.

As per claim 3, Smartt teaches “said structure is a k-d-tree index structure comprising a root node, intermediate nodes and leaf nodes, wherein each node is part of a parent-child relationship wherein each parent node includes control information from which one of at least two child nodes associated with the parent node are distinguishable based on a search key” at col. 23, lines 45-65, col. 24, lines 1-45, col. 25, lines 58 to col. 26, line 16.

As per claim 5, Smartt teaches “improved index is non-homogeneous” at col. 23, lines 45-65, col. 25, lines 58 to col. 26, line 16.

As per claim 6, Smartt teaches “geographic features are roads” at col. 29, lines 16-24.

As per claim 7, Smartt teaches “property is a rank of the geographic features represented by the indexed data” at col. 25, lines 6-58.

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As per claim 8, Smartt teaches “rank includes both integers and fractional values” at col. 25, lines 6-58.

As per claim 9, Smartt teaches “property is a granularity of the indexed data” at col. 10, line, line 22 to col. 11, line 17, col. 25, line 6 to col. 26, line 6.

As per claim 12, Smartt teaches “property is an expiration date associated with the indexed data” at col. 6, lines 55-65.

As per claim 13, Smartt teaches “property is a creation date associated with the indexed data” at col. 6, lines 55-65.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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6. Claims 4, 11, are rejected under 35 U.S.C. 103(a) as being unpatentable over Smartt et al. (US Patent No. 6,470,287 B1), in view of Evans et al. (US Patent No. 6,327,535 B1).

As per claim 4, Smartt does not explicitly teach “improved index is homogeneous”. However, Evans teaches this limitation at col. 12, lines 23-45, col. 4, lines 31-41.

Thus, it would have been obvious to one ordinarily skilled in the art at the time of the invention to combine the teachings of Smartt with the teachings of Evans to include “improved index is homogeneous” in order to enable proximity calculations to be computed in a fast and straight forward manner.

As per claim 11, Smartt does not explicitly teach “property is a scale associated with the indexed data”. However, Evans teaches this limitation at col. 6, line 66 to col.7, line 13, col. 24, lines 20-40.

Thus, it would have been obvious to one ordinarily skilled in the art at the time of the invention to combine the teachings of Smartt with the teachings of Evans to include “property is a scale associated with the indexed data” in order to provide a uniform way of defining locations.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smartt et al. (US Patent No. 6,470,287 B1), as applied to claims above, in view of Rutledge et al. (US Patent No 6,650,998 B1).

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As per claim 10, Smartt does not explicitly teach “property is a viewing altitude associated with the indexed data”. However, Rutledge teaches this limitation at col. 9, lines 11-41, Fig. 5.

It would have been obvious to one ordinarily skilled in the art at the time of the invention to combine the teachings of Smartt with the teachings of Rutledge to include “property is a viewing altitude associated with the indexed data” in order to allow a user to be able to pan, zoom, and jump to various locations, and thus to be able to precisely specify the geographical area of interest, defined in terms of a range of latitude and longitude coordinates.

Response to Arguments

8. Applicant's arguments filed 04/19/2004 have been fully considered but they are not persuasive.

Applicant argues that:

(a) Smartt does not teach/suggest claim 1's feature of “a third dimension includes non-spatial property information, said third dimension is searchable for a non-spatial property of the geographic features represented by the data”.

(b) Smartt does not teach/suggest claim 2's feature of “a non-spatial property of the data that represent the geographic features is searchable using said third dimension”.

(c) Smartt does not teach/suggest claim 14's feature of “third dimension includes granularity information of the indexed data”

The Examiner respectfully disagrees for the following reasons:

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Per (a), with respect to claim 1, Applicant's arguments are not persuasive. The Examiner has thoroughly reviewed Applicants' arguments but firmly believes that the cited reference reasonably and properly meet the claimed limitation. Applicants are reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of the claimed as explained below. The Examiner is not limited to Applicants' definition which is not specifically set forth in the claims. In re Tanaka et al., 193 USPQ 139, (CCPA) 1977.

In this case, Smartt teaches the third dimension (i.e. "Leon's BBQ") includes non-spatial property information, said third dimension is searchable for a non-spatial property of the geographic features represented by the data at col. 7, lines 28-41, col. 8, lines 1-23. Specifically, as shown in DATABASE TABLE 3, at col. 8, lines 1-23, X, Y, and Name correspond to the first, second and third dimension respectively. It should be noted the third dimension (i.e. "Leon's BBQ") is a non-spatial dimension, which is the property information related to X=-42; Y=25, and said third dimension is searchable as taught by Smartt at col. 8, lines 18-22. Further, Smartt also discloses the third dimension (i.e. non-spatial dimension) which corresponds to "Hwy 1", "100-199 Main Street" or "Lake Michigan" and "a great lake" (at col. 7, lines 29-41). It represents the property of the geographic feature as "an example non-spatial description commonly associated with polygonal map objects are the name and type of the polygon object (col. 7, lines 34-41).

It is thus clearly shown by Smartt the feature of a third dimension includes non-spatial property information, said third dimension is searchable for a non-spatial property of the geographic features represented by the data.

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Per (b), under similar rational as provided in (a), the same reasoning would be applicable to a non-spatial property of the data that represent the geographic features is searchable using said third dimension.

Per (c), pursuant to the present invention, the granularity indexing information used to represent three ranks of data in the multi-dimensional k-d tree may have integer and/or non-integer values of rank (Specification, page 6, lines 8-10), similarly, Smartt discloses the granularity information corresponds to the level of DATA TABLE 3, that is, the Lev column indicates the level of the tile/shingle structure, 0 being the finest partitioning, 14 being the most coarse, 15 being the top-level compartment (col. 25, lines 6-8). Further, the granularity of the index data is searchable using said third dimension is taught by Smartt as “the Segs column accumulates the total number of TIGER street segment which naturally fit at this level. The Shing and Tiles columns accumulate the total number of unique Key values returned by the KeyForBox function (col. 25, lines 14-20).

Accordingly, the claimed invention as represented in the claims does not represent a patentable over the art of record.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miranda Le whose telephone number is (703) 305-3203. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene, can be reached on (703) 305-9790. The fax number to this Art Unit is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.



Miranda Le
June 25, 2004



GRETA ROBINSON
PRIMARY EXAMINER